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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,995	12/03/2003	Eduardo Napadensky	P-3099-US3	5199

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PEARL COHEN ZEDEK, LLP
PEARL COHEN ZEDEK LATZER, LLP
1500 BROADWAY 12TH FLOOR
NEW YORK, NY 10036

EXAMINER

BERMAN, SUSAN W

ART UNIT PAPER NUMBER

1711

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/725,995

Applicant(s)

NAPADENSKY ET AL.

Examiner

Susan W. Berman

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 80,82,87,89-93,95-102,104,105,125 and 126 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 80,82,87,89-93,95-102,104,105,125 and 126 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/09/06 has been entered.

Response to Amendment

The rejection of claims under 35 U.S.C. 102(b) as being anticipated by WO 00/11092 is withdrawn because WO '092 does not teach dispensing two or more materials from different dispensers.

The rejection of claims under 35 U.S.C. 102(b) as being anticipated by Cima et al (5,387,380) is withdrawn. Cima et al disclose a process comprising depositing a first layer of a powder material and depositing a binder material to selected regions and repeating the steps to form a component, while applicant claims dispensing two materials in liquid form.

Response to Arguments

Applicant's arguments filed 08-09-2006 have been fully considered but they are not persuasive.

Helsinki: Applicant argues that Helsinki does not teach combining two or more interface materials into at least two types of phases or regions. This argument is not persuasive because applicant's method, as claimed, requires dispensing two or more materials in liquid form layer by

Art Unit: 1711

layer to form at least two different types of phases combined according to the data generated.

The fabricating material as taught by Helsinki forms construction layers and the supporting material forms support layers thus providing two different types of phases, as required in the instant claims.

Yamane et al: Applicant argues that Yamane et al teach against combining materials within phases and teach against curing the dispensed materials after their deposition. Applicant's claim, as written, requires selectively dispensing two or more interface materials, in liquid form, layer by layer from two or more different dispensers to form at least two different "types" of phases combined according to the data generated. Yamane et al teach dispensing different liquids from different dispensers layer by layer to provide multi-kind articles wherein the articles comprise a bulky, visually hidden portion and a visually-exposed surface portion. See column 9, line 52, to column 10, line 40. Since different kinds of materials are used, different kinds of phases or regions would be expected to be generated, thus meeting the instant claim language. It is not clear what is meant by "combining materials within phases". Applicant's claims recite a "composite material comprising a combination of at least two types of phases or regions, each comprising a different combination of interface materials". This recitation is a statement of the intended product and not a method step that provides patentability to the claims. Furthermore, Yamane et al disclose a composite article formed from two kinds of resins, wherein each resin comprises a different combination of components.

US 2002/0016386: Applicant argues that US '386 does not disclose the combination of two types of phases or regions within a multi-phase composite material, wherein each phase or

Art Unit: 1711

region comprises a different combination of different interface materials. This argument is not persuasive. See paragraphs [0169] to [0171].

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 80, 82, 87, 89-93, 95-102, 101, 102, 104, 105 and 125-126 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method comprising (1) generating data from a “CAD” system and a system controller and (2) dispensing the material by ink jet printing through ink jet nozzles and providing different phases or regions that are structurally different, chemically different or phases having different properties, does not reasonably provide enablement for a method comprising generating data and/or dispensing liquid interface materials by methods such as drawing or describing or tooling an object and/or pouring or spraying a liquid onto a substrate. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. See [0261], [0293], [0314], [0316], [0322] and [0324].

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 80, 82, 87, 89-93, 95-102, 101, 102, 104, 105 and 125-126 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear from the claim language how or what method steps are required to generate data for preparing the composite material. It is not clear how the data is generated by "combining two or more of said interface materials into at least two types of said phases or regions". It is not clear what data is generated. See [0261]-[0263] and [0293] which disclose generating data for a pre-determined combination of the first compositions and the second composition to produce support layers or release layers and generating data from a 3-D data source such as a CAD system and a system controller having software or executable code programmed with pre-defined instructions.

The use of the word "types" in claims 80, 89 and 90 renders the claims indefinite. It is not clear what "types" are intended to be included within the claim language. It is suggested that applicant use the word "kind" or phrase "different kinds" instead of "type" or "types".

It is not clear what is meant by "selectively dispensing". In what way is the dispensing "selective"? See [0133] wherein applicant discloses selectively adjusting the output from each ink jet nozzle and [0134] wherein applicant discloses combining materials having different properties from each dispenser to adjust and control the properties of the material of the three dimensional object produced. See [0314] and [0324] wherein dispensing by ink jet printing is taught. If applicant intends to claim a method wherein materials having different properties are dispensed from ink jet nozzles and the output from each nozzle is adjusted selectively to control the properties of a combination of different interface materials, it should be so stated.

The “two or more interface materials” are not clearly differentiated one from the other. It is not clear what is meant by a “interface materials” or in what way the two or more materials are different one from the other. What is present in the material that makes it an interface material? What is the interface? How is one interface material different from the other interface material? It is not clear how two “phases” or “regions” are obtained or what materials are present in the two phases or regions. In what way do the combinations of interface material differ in order to provide at least two phases or regions?

Claim 97 recites improper Markush language. The phrase “selected from.... properties or a combination thereof” should read “selected from.... properties and a combination thereof”.

Claim 102 fails to recite a method step.. How is the construction layer “used” ? What is the method of “using” the construction layer?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The rejections of record are based on the examiner’s consideration of the definition in the present disclosure of “interface materials” set forth in the instant claims for providing a multi-phase composite as “any composition suitable for building a three-dimensional object” that is liquid at the dispensing temperature.

Art Unit: 1711

Claims 80, 82, 89-92, 95-99, 101-102, 104 and 125 are rejected under 35 U.S.C. 102(b) as being anticipated by Helinski (5,136,515). Helsinki discloses several different embodiments for producing a three dimensional object by jetting at least two different materials into various layers using two jetting heads, wherein the second material forms a support for the first material. The fabricating material as taught by Helsinki forms construction layers and the supporting material forms support layers thus providing two different types of phases, as required in the instant claims. See columns 2-3. The composite structure has differing hardness properties (column 3, lines 24-35).

Claims 80, 82, 89-93, 95-99, 101, 102 and 125 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamane et al (5,059,266). Yamane et al disclose a method for forming a three-dimensional article wherein a photosetting or thermosetting material A is jetted from ink jet heads to a stage, laminated and exposed to light to cure, then a photo-setting or thermosetting material B is jetted from ink jet heads to a stage, laminated and exposed to light to cure (column 4, line 50, to column 5, line 5. Each of the photo-setting or thermosetting materials can be a different kind or different color resin to form multi-kind articles formed of a number of kind of resins (column 6, line 60, to column 7, line 10, and column 9, line 52, to column 10, line 40). See also column 6, line 60, to column 8, line 21, column 11, line 4, to column 12, line 37, column 13, lines 58-66. With respect to claim 96, compositions comprising a thixotropic material dispersion would be expected to provide a non-continuous phase. With respect to claims 98-99, US '386 discloses different hardness properties.

Art Unit: 1711

Claims 80, 82, 89-92, 95-102, 104, 105 and 125 are rejected under 35 U.S.C. 102(b) as being anticipated by Napadensky in US 2002/0016386, published 02/07/2002. The instant claims 80-105 have an effective filing date of 12/03/2003. The "phase compositions" set forth in the instant claims are defined in the disclosure as "any composition suitable for building a three-dimensional object". Napadensky '386 discloses a method corresponding to the limitations set forth in the instant claims and compositions to use in the method. See paragraphs [0072] to [0078] and [0169] to [0177] and claims 35-63 for disclosure of two different interface materials that are combined in pre-determined portions to produce a multiplicity of construction layers, a multiplicity of support layers and a multiplicity of release layers. Figure 1 shows two dispensing units (see [0096]). With respect to claim 96, compositions comprising a pigment dispersion would be expected to provide a non-continuous phase. With respect to claims 98-100, US '386 discloses different modulus of elasticity and different hardness properties.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 80, 82, 87-93, 95-102, 104, 105 and 125-126 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-42 of U.S. Patent No. US 6,569,373 (Napadensky). Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. This patent issued from the parent application of the instant application but the instant claims were not restricted from the parent application. The differences between the instant claims and the claims of '373 are that the instant claims recite: (1) a "multi-phase composite" and (2), generating data..., and (3) curing or solidifying at a controlled temperature while the claims of '373 recite: (1) a "three-dimensional object" and (2) curing, without mentioning temperature. The claims of US '373 do not mention generating data to produce the 3-D object however, the comprising language of the method claims encompasses this step, which is disclosed in Figure 1 and discussed in column 7. The "multi-phase composite" in the instant claims corresponds to the "three-dimensional object" in the claims of '373. It would have been obvious to one skilled in the art at the time of the invention to produce a "multi-composite" three dimensional structure by the method set forth in the claims of US '373 because the method combines two different interface materials that would be expected to form a multi-phase object.

Allowable Subject Matter

Claims 93 and 126 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. None of the cited art teaches the instantly claimed method wherein one or more properties changes along a gradient,

Art Unit: 1711

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067.

The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB
10/23/06


Susan W Berman
Primary Examiner
Art Unit 1711